

AMENDMENTS TO THE CLAIMS

The following listing of Claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (Currently Amended) An optical code reading and decoding system comprising:

a plurality of light sources for emanating a respective wavelength/color of light towards an optical code on an externally located target surface, wherein at least two of the plurality of light sources emanate different wavelengths/colors of light;

an image sensor for generating an integrated image of the optical code, said integrated image having at least two simultaneously acquired monochrome images each corresponding to a respective one of the plurality of light sources;

a processor for separating said integrated image into said at least two monochrome images and analyzing at least one parameter corresponding to the at least two monochrome images and determining at least one decodable monochrome image; and

a decoder for decoding at least a portion of said at least one decodable monochrome image.

Claim 2. (Original) The optical code reading and decoding system as in Claim 1, wherein said optical code is a DPM code.

Application Serial No. 10/621,831
Reply to Office Action of August 10, 2005

Claim 3. (Original) The optical code reading and decoding system as in Claim 1, wherein said plurality of light sources emanate a respective wavelength/color of light selected from the group consisting of red, green, blue, infrared and ultraviolet.

Claim 4. (Original) The optical code reading and decoding system as in Claim 1, wherein the at least one parameter is contrast.

Claim 5. (Original) The optical code reading and decoding system as in Claim 1, further comprising a positional adjustment mechanism configured for moving each of the plurality of light sources.

Claim 6. (Original) The optical code reading and decoding system as in Claim 5, wherein the positional adjustment mechanism includes a rotation mechanism for rotating the plurality of light sources.

Claim 7. (Original) The optical code reading and decoding system as in Claim 5, wherein the positional adjustment mechanism includes an elevation mechanism for elevating and de-elevating the plurality of light sources.

Claim 8. (Original) The optical code reading and decoding system as in Claim 1, further comprising an automatic focus mechanism for focusing the integrated image of the optical code onto the image sensor.

Application Serial No. 10/621,831
Reply to Office Action of August 10, 2005

Claim 9. (Original) The optical code reading and decoding system as in Claim 1, wherein the plurality of light sources are provided in an arrangement selected from the group consisting of U-shaped, triangular and circular arrangements.

Claim 10. (Original) The optical code reading and decoding system as in Claim 1, wherein the processor is programmed with default settings for each of the plurality of light sources.

Claim 11. (Original) The optical code reading and decoding system as in Claim 10, wherein the default settings include illumination intensity and glancing angle settings for each of the plurality of light sources.

Claim 12. (Original) The optical code reading and decoding system as in Claim 1, further comprising at least one sensor for sensing at least one parameter for controlling illumination intensity for each of the plurality of light sources.

Claim 13. (Original) The optical code reading and decoding system as in Claim 1, further comprising a display for providing at least one suggestion for acquiring the decodable image of the integrated image.

Claim 14. (Original) The optical code reading and decoding system as in Claim 1, wherein said system is an optical code reader and wherein the plurality of light sources are housed within and removably mounted to said optical code reader.

Application Serial No. 10/621,831
Reply to Office Action of August 10, 2005

Claim 15. (Original) The optical code reading and decoding system as in Claim 1, further comprising a feedback system having means for automatically setting at least one characteristic of said optical code reading system.

Claim 16. (Previously Presented) The optical code reading and decoding system as in Claim 1, further comprising an information system storing information related to an item, said information capable of being retrieved after decoding said at least a portion of said at least one decodable monochrome image.

Claim 17. (Currently Amended) A method for reading and decoding an optical code comprising the steps of:

illuminating an optical code on a target surface by emanating a plurality of wavelengths/colors of light towards the optical code, wherein at least two of the wavelengths/colors of light are different;

generating an integrated image of the optical code, said integrated image having at least two simultaneously acquired monochrome images each corresponding to a respective one of the wavelengths/colors of light; and

decoding at least a portion of at least one monochrome image of said at least two monochrome images.

Claim 18. (Original) The method as in Claim 17, wherein said optical code is a DPM code.

Application Serial No. 10/621,831
Reply to Office Action of August 10, 2005

Claim 19. (Original) The method as in Claim 17, wherein the illuminating step comprises the step of positioning a plurality of light sources in proximity to the optical code, each of said plurality of light sources configured to emanate one of the plurality of wavelengths/colors of light.

Claim 20. (Original) The method as in Claim 19, further comprising the step of adjusting the position of the plurality of light sources with respect to the optical code.

Claim 21. (Original) The method as in Claim 19, further comprising the step of sensing at least one parameter for controlling illumination intensity for each of the plurality of light sources.

Claim 22. (Original) The method as in Claim 19, further comprising the step of automatically setting at least one characteristic of said plurality of light sources.

Claim 23. (Original) The method as in Claim 17, wherein the step of generating the integrated image comprises the step of automatically focusing the integrated image onto an image sensor.

Claim 24. (Previously Presented) The method as in Claim 17, further comprising the step of analyzing at least one parameter corresponding to each of the at least two monochrome images and determining at least one decodable image of the at least two

Application Serial No. 10/621,831
Reply to Office Action of August 10, 2005

monochrome images, wherein said at least one decodable image includes the image where the at least a portion thereof is decoded by said decoding step.

Claim 25. (Original) The method as in Claim 24, wherein said at least one parameter is contrast.

Claim 26. (Previously Presented) The method as in Claim 24, wherein the step of analyzing the at least one parameter comprises the step of separating the integrated image in individual color channels each corresponding to a respective image of the at least two monochrome images, including the image where the at least a portion thereof is decoded by said decoding step.

Claim 27. (Currently Amended) An optical code reader comprising:
a scanning unit housing a plurality of light sources;
an activation mechanism for actuating said plurality of light sources for emanating a respective wavelength/color of light towards an optical code on an externally located target surface, wherein at least two of the plurality of light sources emanate different wavelengths/colors of light;
an image sensor for generating an integrated image of the optical code, said integrated image having at least two simultaneously acquired monochrome images corresponding to a respective one of the plurality of light sources;

Application Serial No. 10/621,831
Reply to Office Action of August 10, 2005

means for separating said integrated image into said at least two monochrome images and analyzing at least one parameter corresponding to the at least two monochrome images and determining at least one decodable monochrome image; and
a decoder for decoding at least a portion of said at least one decodable monochrome image.

Claim 28. (Original) The optical code reader as in Claim 27, wherein said optical code is a DPM code.

Claim 29. (Previously Presented) The optical code reader as in Claim 27, wherein said plurality of light sources emanate a respective wavelength/color of light selected from the group consisting of red, green, blue, infrared and ultraviolet.

Claim 30. (Original) The optical code reader as in Claim 27, wherein the at least one parameter is contrast.

Claim 31. (Original) The optical code reader as in Claim 27, further comprising a positional adjustment mechanism configured for moving each of the plurality of light sources.

Claim 32. (Original) The optical code reader as in Claim 31, wherein the positional adjustment mechanism includes a rotation mechanism for rotating the plurality of light sources.

Application Serial No. 10/621,831
Reply to Office Action of August 10, 2005

Claim 33. (Original) The optical code reader as in Claim 31, wherein the positional adjustment mechanism includes an elevation mechanism for elevating and de-elevating the plurality of light sources.

Claim 34. (Original) The optical code reader as in Claim 27, further comprising an automatic focus mechanism for focusing the integrated image of the optical code onto the image sensor.

Claim 35. (Original) The optical code reader as in Claim 27, wherein the plurality of light sources are provided in an arrangement selected from the group consisting of U-shaped, triangular and circular arrangements.

Claim 36. (Original) The optical code reader as in Claim 27, wherein the means for analyzing includes a processor programmed with default settings for each of the plurality of light sources.

Claim 37. (Original) The optical code reader as in Claim 36, wherein the default settings include illumination intensity and glancing angle settings for each of the plurality of light sources.

Application Serial No. 10/621,831
Reply to Office Action of August 10, 2005

Claim 38. (Original) The optical code reader as in Claim 27, further comprising at least one sensor for sensing at least one parameter for controlling illumination intensity for each of the plurality of light sources.

Claim 39. (Original) The optical code reader as in Claim 27, further comprising a display for providing at least one suggestion for acquiring the decodable image of the integrated image.

Claim 40. (Original) The optical code reader as in Claim 27, wherein the plurality of light sources are housed within and removably mounted to the optical code reader.

Claim 41. (Original) The optical code reader as in Claim 27, further comprising a feedback system having means for automatically setting at least one characteristic of said optical code reader.